

Abstract

A communication system and method for communicating over a wire in a group of wires are described. The communication system includes a first transceiver connected to a first wire in the group of wires and a second transceiver connected to a second wire in the group of wires. Although not directly connected by a wire, the transceivers communicate with each other using electromagnetically coupled signals. For example, the first transceiver transmits signals over the first wire that produce interference on the second wire. The second transceiver detects the interference on the second wire and transmits a communication signal over the second wire that electromagnetically couples to the first wire. The electromagnetically coupled signal conveys a message to the first transceiver that induces the first transceiver to produce a response. The message directs the first transceiver to take an action that adjusts the produced interference. The communication signal has a predefined frequency and phase characteristic that causes the first transceiver to recognize the message.